

Draft Statement of Work
NASA Safety Center Technical Services Support
Solicitation Number NNC10ZCH002R

1.0 Overview

The NASA Safety Center (NSC) was established in 2006 to establish a Technical Excellence initiative; increasing and sustaining discipline knowledge within the SMA community; improving the Agency Incident Reporting Information System making it more user friendly and accessible; and developing an increased role and approach for conducting audits, mishap investigations and independent assessments. These initiatives were divided into 4 functional areas: Technical Excellence, Knowledge Management, Mishap Investigation Support, and Audits and Assessments. This contract will provide technical support to the NSC.

The NASA Technical Excellence Office (TEO) was created to develop additional capability and competency in the Safety and Mission Assurance engineering and technical workforce. This workforce supports the Office of Safety and Mission Assurance (OSMA) managing and executing Agency SMA activities. In 2009, the SMA Technical Excellence Program (STEP) was created by TEO to provide a comprehensive professional development system having four distinct levels and covering six primary SMA disciplines: System Safety, Reliability & Maintainability, Software Assurance, Quality Engineering, Operational Safety, and Aviation Safety. STEP is designed to be a predominately web-based, professional development system that maximizes the utilization of the System for Administration Training and Education Resources for NASA (SATERN) Learning Management System (LMS).

The NASA Knowledge Management Systems Office (KMSO) provides the infrastructure and support necessary for effective knowledge collection, analysis, dissemination and management for the SMA community and the broader NASA community with knowledge management, systems hosting, data analysis and trending, information dissemination and enterprise architecture. KMSO provides the IT infrastructure and support services to enable the other NSC functional areas.

The NASA Mishap Investigation Support Office (MISO) was created to: facilitate the mishap investigation process; provide mishap data management, quality assurance, analysis, trending, and risk assessment; and communicate mishap-related information to the Agency to ensure understanding and prevent recurrence. To those ends, MISO in concert with OSMA has developed and fielded tools, training, case studies, messages, videos, templates, guides and special studies for senior leadership.

The NASA Audits and Assessments Office (AAO) performs coordinated program, project, and institutional audits. Each NASA Center and Component Facility is audited at least once every three years, with follow-up audits scheduled as necessary. Requirement flow-down and SMA Engineering Design Audits and Assessments (REDAA), Quality Audit, Assessment and Review (QAAR) and Institutional / Facility / Operational (IFO) safety audits are conducted. AAO identifies best practices and Agency-wide systemic issues that can be shared to provide significant benefit to other NASA Centers.

1.1 Scope

The contractor shall provide all material, equipment, personnel and supervision to accomplish the requirements as outlined in this Statement of Work (SOW). The Contractor shall provide Training Course Development and Support, Information Dissemination and Outreach, Operational Support of the NSC IT Systems including Software Development, Knowledge

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Management, Mishap Investigation Support Office Safety Engineering Services Support, and Data Analysis and Trending to the NSC.

Any activities described herein as “review,” “certify,” “ensure compliance,” “verify,” or “evaluate,” shall not be construed as implying that the Contractor has the authority to approve/disapprove Government policies, procedures, specifications, requirements or those of any of its Government contractors. Language contained in this SOW shall not be construed to mean that the Contractor has the authority to perform final acceptance or rejection on the Government’s behalf for any products or services. The Contractor’s functions involving evaluation, verification, certification, review, etc., shall require communication of findings to the appropriate NASA representative having final approval or acceptance authority.

The contractor shall have the capability to manage and perform numerous and varied task orders and projects simultaneously for the NSC and its customers across the Agency and established partnerships.

2.0 Task Descriptions

This SOW describes the requirements for the contractor to provide technical services to the NSC. These services include both the performing of these functions and the independent assessment of these functions and may include special projects involving multiple disciplines.

The Contractor shall perform the work as directed in NASA issued task orders. Personnel assigned to the tasks shall have the required training, certifications and experience required to fulfill the task. Task orders may be issued within and across the areas described below, and may include the following:

2.1 Training Course Development and Support

The Contractor shall provide a formal instructional development capability that is documented with an established past performance. The Contractor shall have the capability and expertise to perform and support training and support activities related to the other task areas in the SOW and in support of the NSC. The Contractor shall conduct web-based training, technology research and benchmarking.

2.1.1 SMA Technical Excellence Program (STEP)

The Contractor shall have the capability and expertise to support the Technical Excellence Office in the following disciplines: System Safety, Reliability & Maintainability, Quality Engineering, Software Assurance, Occupational Safety and Aviation Safety. The Contractor shall provide the core capability and subject matter expertise for the development, maintenance, and/or acquisition of STEP courses primarily for Web-Based Training (WBT) and Blended Learning. The web based training courses and modules shall be SCORM, Section 508 compliant and fully functional on the System for Administration Training and Education Resources for NASA (SATERN). An instructional system design process and subject matter experts (SMEs) shall be utilized to design and develop courses, meet the curriculum course

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descriptions. Additionally, the full catalog of STEP courses will need to be continually maintained on an annual basis. Make vs. Buy Capability, Cost Benefit Analyses for commercial off-the-shelf training capabilities, as well as negotiation of draft-licensing agreements to meet the needs of the government for commercially available courses shall be included.

The priority and quantity of training modules/courses to be developed annually will be strongly influenced by the available funding. Future topics may include interactive learning and web-based simulations. Instruction timeframe for high level planning purposes should be evenly distributed between two and three day training events.

2.1.2. Mishap Investigation Training

The Contractor shall have the capability and expertise to develop SATERN-ready electronic files, and classroom teaching materials delivered to NASA and off-site locations where and when required by NSC instructors. The Contractor shall convert basic content such as text, photographs, graphic objects and video clips into courses compatible with SATERN. The Contractor shall support development and delivery of courses in disciplines related to mishap investigation including Root Cause Analysis, Human Factors Investigator, and Interim Response Team.

2.1.3 SATERN Support

The Contractor shall have the capability and expertise to support the development and implementation of the NASA SMA catalog via SATERN. The Contractor shall provide a qualified SATERN Administration capability. SATERN specific responsibilities include generating SATERN reports, managing catalogs/course materials for the SMA Domain portion of SATERN (~350 courses), constructing complex queries to extract performance-oriented data for SMA and STEP-oriented metrics and performance analysis, continued integration of STEP courses and curricula into SATERN and establishing appropriate links to these materials from SATERN and management and administration of individual learner accomplishments for STEP course completions and other STEP curriculum requirements.

2.2 Information Dissemination and Outreach

The Contractor shall support the Information Dissemination and Outreach activities of the NSC including print, electronic and in-person channels.

2.2.1 NSC Website Content Creation (nsc.nasa.gov)

The Contractor shall have the capability and expertise to develop original content for the NSC website in addition to supporting the identification of existing content which supports the mission of the NSC to provide dynamic content to the NASA Safety and Mission Assurance community. The NSC website includes but is not limited to the SMA Library, a dynamic mishap dashboard, the STEP Handbook, event registration, calendar, STEP procedural information, video recorded content including guest lectures and video nuggets, and NSC organizational information. The Contractor shall perform requirements definition, design of new content and system capability, and implement change control management processes in support of the NSC website content and functionality. Content management, meta-tagging, maintenance of all external Web links,

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quality assurance and information architecture services to ensure accuracy and availability of content. Provide optimized search capabilities to support discovery of content. Compliance with all Federal/Agency/Center Web publishing standards and policies including Section 508 compliance is required. The Contractor shall perform development and maintenance activities ensuring that security vulnerabilities are adequately addressed and mitigated in accordance with GRC and NASA IT and IT Security requirements. Alternative analysis on new COTS products and technologies may be conducted in support of the NSC; ensuring that it's web-based technologies stay at the fore-front of technology, delivering state-of-the-art information to the agency in an effective and efficient manner.

2.2.2 Technical Writing and Graphics Design

The Contractor shall have the capability and expertise to provide technical and creative writing support to the NSC. Content creation and support for information dissemination activities include annual reports, newsletters, brochures, multi-media campaigns, case studies, feature stories, handbooks including but not limited to the STEP Handbook and NASA Mishap Investigation Handbook, and special studies promoting safety. Technical writing expertise is required in drafting and editing large documents in word processing software that include inserted photographs, graphic objects, tables and hierarchical format. The Contractor shall have the ability to quickly learn and grasp complex engineering and scientific concepts, jargon and references, write in a simple, concise manner to a deadline, and apply superb attention to detail and diligence to complete an exemplary product. Additional skills should include the ability to take statistical data and develop communications materials that explain how the information is relevant to the NASA SMA Community, an understanding of the issues facing the NASA SMA Community and the expertise to provide suggestions for approaches in order to provide relevant information that is helpful. Conformance with NSC and NASA design styles as well as NASA Communication Material Review requirements is required as well as an understanding and familiarity with government and industry style guides including Associated Press (AP) and Government Printing Office (GPO) Style. The Contractor shall have the expertise and capability to prepare files for printing consistent with Glenn Research Center printing service standards, cognizant of budget constraints. The Contractor shall provide graphic design services supporting original content creation including info-graphics, posters, banners, signage, exhibits, awareness materials, graphics and animations optimized for the NSC website. Expertise in the creation of PowerPoint presentations is also desirable.

2.2.2.1 System Failure Case Study (SFCS) Support

The contractor shall have the capability and expertise to support the planning and development of the Office of Safety and Mission Assurance (OSMA) Safety Messages and Safety message package. The Chief of OSMA presents the SFCS to the NASA Administrator and senior staff on a monthly basis. NASA guidelines for format and review process shall be followed to assure adequate peer and government review. Topics will cover a range of subjects and require subject matter experts qualified to ensure accuracy and quality.

2.2.2.2 NASA Mishap Investigation Report Technical Support

The Contractor shall have the capability and expertise to provide, upon request, a technical writer to the Investigating Authority (NASA mishap investigation board or team) for a NASA

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mishap or close call. Support for two investigations simultaneously may be requested. This service consists of formatting all the required investigation products into a draft report compliant with NASA requirements. The Contractor may be called upon to utilize the NASA Root Cause Analysis Tool (RCAT) in support of mishap investigations. Strong oral communication skills, the ability to travel to another NASA Center and support an investigation for 2-3 weeks, and expertise in the identification, handling and storage of Sensitive but Unclassified (SBU) and International Trafficking in Arms Regulation (ITAR) information are critical to this task.

2.2.3 Video Production

The Contractor shall have the capability and expertise to create original video products and provide video recording, editing, production, closed captioning and distribution of live events, in a cost effective manner. There is a current need for a Mediasite (by Sonic Foundry) qualified and experienced capability to operate related Government Furnished Equipment (GFE) to record webinars to be streamed to the Agency via Webcast using Government Furnished Equipment (GFE) distance learning technology. Future video production services may be expanded to utilize High Definition (HD) and other emerging video technologies. Set coordination, sound, lighting and visuals are desired to produce professional-quality video. The Contractor shall format video output to be compatible for future viewing using the SATERN Learning Management System, NSC Website, and/or mobile devices cognizant of 508 compliance requirements. The Contractor shall have the capability and experience to develop videos and podcasts that are informational as well as engaging that include a mix of relevant graphics and animation to best communicate the message to the intended audience.

2.2.4 Agency-wide Conference Support

The Contractor shall have the capability and expertise to plan and host Agency-wide conference and training workshops at a government provided or specified facility. Conference Support includes tasks to develop agendas and schedules for concurrent training sessions, provide registration services for events, organization of all meeting-related activities for visiting groups, to include team building and collaboration sessions structured prior to and after the primary daily sessions. Development and implementation of a discipline-oriented, Technical Excellence Guest Lecture Series includes tasks to arrange for experts to provide webinars on discipline-related topics approved by NASA at various NASA Centers, coordination, announcement, and hosting-related logistical support.

2.3 Operational Support of NSC IT Systems

The NSC has hosted the Process Based Mission Assurance (PBMA) Enhanced Security Workgroup (ESWG) system to support Agency-wide collaboration in support for Safety and Mission Assurance. This legacy system was based on the Ramius Community Zero product. This tool will no longer be supported after January 1, 2011, prompting the NSC to migrate to a new tool. There may be a need to provide minimal support to the legacy system until the migration is completed. The NSC is implementing the Knowledge Now (NSCKN) product developed by the Triune Group to facilitate knowledge management activities of communities of practice across the Agency as a replacement for the PBMA ESWG. The NSC website is currently utilizing an Ektron Content Management System (CMS) and supports both public and private content accessible only within the NASA.gov domain. The NSC also hosts applications

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developed within NASA in support of the SMA Community including the Flight Test Safety Database (FTSDB), Safety and Mission Assurance Requirements Tracking System (SMARTS), NCAS Contract Management System, and the Software Safety Litmus Test (SSLT) Tool. Windows Server 2008, Microsoft Internet Information Services (IIS), Microsoft SQL Server, Ektron CMS, PHP, Adobe Cold Fusion support the Knowledge Management System. The NSC infrastructure includes a web server running IIS 7 / ColdFusion 9 Standard / ASP.Net, a Web server running IIS 7 / Ektron 7.66 / PHP 5.2.12 / ASP.Net, a Pre-production web/database server running IIS 7 / ColdFusion 9 Standard / ASP.Net / PHP 5.2.12 / SQL Server 2005, 32-bit, 2 database servers running SQL Server 2005 32-bit and SQL Server 2008 R2 64-bit. The Infrastructure also includes: a SAN supporting tape backups, VMWare Vcenter server Foundation, MySQL, middleware, switches, active directory, Sonic Foundry Mediasite, and kemp load balancers, McAfee firewalls. A remote disaster recovery site is being stood up as well.

2.3.1 NSC Information Technology (IT) Infrastructure Management, Security Compliance, System, and Hosting Support

The Contractor shall have the capability and expertise to provide the planning and design of computer systems that integrate computer hardware, software and communications technologies supporting hosting environment services for NSC in accordance with federal and NASA requirements. These services shall be provided for all environments required for NSC operations: Production or live data, Demonstration, and Development environments. The Contractor shall provide or coordinate both physical and IT security, C&A and penetration testing services in accordance with federal and NASA requirements. Associated tasks shall relate to implementation of mirrored websites, or hosting capabilities at the same location or other locations as designated by NASA, and services and support for the hosted environment(s) to maintain technology advancement or change in NASA requirements. Tasks include providing computing services, data storage service, service monitoring and management on GFE. Continuity of operations shall be maintained through a disaster recovery plan and a contingency/disaster recovery site located offsite at Plumbrook Station. Tasks shall support maintaining license agreements with supporting COTS providers, creation and maintenance of COTS provider agreements, evaluation and purchase of COTS software to support NSC knowledge management objectives, and evaluation and purchase of hardware and software to support the NSC infrastructure. New hardware or software purchases to support system development and improvement shall also be included. Tasks relating to trouble-shooting the application performance at NASA centers may also be written. The Contractor shall support NASA access control and e-Authentication requirements.

2.3.2 Operational Support for the NSC Applications and Users

The Contractor shall have the capability and expertise to provide help desk support including account provisioning and interactive technical support. The Contractor shall develop and maintain on-line help, Frequently Asked Questions (FAQ's), and online tutorials. The Contractor shall provide support to users of the NSC provided tools, establish performance metrics to assure expected quality and support, and allow the integration of disparate datasets with the analysis environments of communities of practice. The Contractor shall have the capability and expertise to accommodate requests for additional operational support relating to business processes supporting NSCKN, the NSC website and NSC applications. The Contractor shall

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operate the STEP and NSCKN Helpdesk during all normal working hours, 8:00 am – 5:00 pm ET.

2.3.3 Change Control Management

The Contractor shall have the capability and expertise to document changes, additions, and software development proposed to NSC applications and content. The Contractor shall support requirements development, documentation, and distribution of information relating to the established program process for change or addition. The Contractor shall manage changes to the current process necessitated by changes in NASA, or program requirements.

2.3.4 Application Development

The Contractor shall have the capability and expertise to provide support in response to documented improvements originating from the configuration and change control process. Tasks shall support the addition of NASA requested functionality (e.g., the implementation of desired or required automations or user-interface process improvements), business process analysis, historical data transfer, identified data migrations, data system networking, interfacing with other data repositories, and implementation of identified center-specific change requests and application additions. The Contractor shall have the capability and associated expertise to define requirements, design, develop, and deploy software applications in support of the mission of the NSC.

2.4 Knowledge Management

The Contractor shall have the capability and expertise to plan, develop and implement a knowledge management program to collect and share SMA expertise across the Agency. The Contractor shall have the capability and expertise to provide the greatest return on investment through increased proficiency of users and awareness of the benefits and capabilities of using knowledge management practices and the NSC services such as the NSCKN and NSC website.

2.5 Mishap Investigation Support Office Safety Engineering Services Support

The Contractor shall have the capability and expertise to support the development of a systematic method for mishap investigation process timeliness and tracking, investigation, authorization, corrective action tracking, and risk report dissemination, develop processes to enable these functions, and align them with the larger NSC activities. Support the Mishap Investigation Status Report process by maintaining and updating existing databases; provide content and support to developing mishap posture data trends and analyses, including development of a hazard taxonomy, presentation material for senior agency officials, and development of annual mishap reports. The Contractor shall support the maintenance and update of the Headquarters Mishap website, tools and methods repository, Agency mishap investigation status reports, safety messages, safety training and support the special studies process as required; provide safety engineering and consultation with center and HQ S&MA

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personnel as requested; Support requirements definition and identify possible solutions for a cross-section of web-accessible analysis tools and methodologies to facilitate investigation analysis, root cause determination, and report generation; Support product development by enhancing existing templates (e.g., Center and Program Mishap Preparedness and Contingency Plan templates, Mishap Investigation Board (MIB) Report templates, etc.)

2.6 Data Analysis and Trending

2.6.1 NASA Incident Reporting Information System (IRIS) Data Quality Support

The Contractor shall have the capability and expertise to screen newly entered safety incident data (mishaps and close calls) within a NASA database via the IRIS web-based application interface. The Contractor shall be familiar with all IRIS functionality in all IRIS modules used by NASA SMA personnel (Health/Medical, Safety, Productivity, Reports, Employee, Administration and General modules). Experience with identification, handling and storage of SBU information is required. The Contractor shall screen IRIS data for compliance and inconsistencies per multiple criteria, identify data quality issues and support contact with IRIS Points of Contact (POC) at each NASA Center to reconcile apparent data quality and quantity issues with the expertise to apply NASA Mishap Investigation policy as specified in NPR 8621.1B.

2.6.2 Analysis, Trending, and Special Studies

The Contractor shall have the capability and expertise to provide analysis, trending, and special studies. Expertise with IRIS, Excel pivot table functionality, Microsoft Word tables and PowerPoint are necessary. Contractor personnel supporting data analysis shall be familiar with basic statistics and charting and be able to use statistical analysis software create basic MySQL scripts to query a database. The Contractor shall have the ability to write reports without excessive need for correction, work within strict timelines, identify statistically significant findings and articulate them in a manner actionable to NASA leaders or safety professionals. The Contractor shall have the ability to develop practical recommendations for findings based on experience and broad knowledge of NASA operational, programmatic, and mission assurance processes, and have expertise in application of multiple taxonomies of defined terms to rapidly and reliably categorize text data.

2.7 Project Management/Project Support

The Contractor shall have the capability and expertise to provide project management support and coordination. Tasks relating to this line item will pertain to meeting support, reporting to NASA, preparation of documentation relating to overall project coordination, presentations relating to recommendations to NASA, system performance reporting, regular updates and documentation relating to application development, schedules and status reports as tasked. Technical consultation on implementation strategies and “best practice” implementation of software, hardware, knowledge management, and systems shall also be written. The Contractor shall provide formal project management of the course development for the entire STEP Program.

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2.7.1 Office and Logistical Support

The contractor shall support meeting coordination, teleconference and videoconference setups, agency-wide course scheduling, coordination, auditing, and conduct of offsite meetings and teambuilding events. The contractor shall have the capability and expertise to support the web-based, on-demand education & career management system resources and other activities of the NSC.

3.0 APPLICABLE AND REFERENCE DOCUMENTS

The documents listed in Appendix A include directives, standards, and specifications that define requirements that may be either flowed-down to, or directly cited on a contract. As specified in the individual contracts, they define requirements to which the work must conform. The Contractor shall determine appropriate flow-down of these requirements to lower level suppliers, determine compliance of suppliers to these requirements, or comply with the requirements of these documents in performing insight/oversight of suppliers and sub-tier suppliers in accordance with the applicable task order. For purposes of determining flow-down of requirements, the current issue of the document applies; for purposes of determining compliance with contract requirements, the terms of the contract apply.

In the performance of task orders, the Contractor shall use documents such as NASA directives, NASA standards, and other applicable standards.

4.0 PERFORMANCE SURVEILLANCE

NASA will monitor and evaluate the Contractor's performance in accordance with the procedures set forth in the Surveillance Plan.

5.0 BUSINESS MANAGEMENT AND ADMINISTRATION

The Contractor shall develop, implement and maintain those business management systems required for effective and efficient accomplishment of contract work. In general, business management and administrative functions described in this section will not be covered by specific Task Orders. Areas include the following:

5.1 Management

The Contractor shall institute and maintain an effective, efficient, and responsive management organization responsible for management and oversight of Contractor personnel, subcontractors, other contract resources, Government Furnished Software and Data, contract

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performance, deliverables, and costs as applicable. The Contractor's manager for this contract shall have complete, full and singular authority to manage this effort.

The Contractor shall promptly alert the COTR and the CO of any issues that may adversely impact the timely and cost-effective delivery of quality products and services under this contract.

5.2 Management Reviews

The Contractor shall participate in the following types of meetings and reviews, as required:

5.2.1 Regular Meetings and Teleconferences

The Contractor shall support weekly meetings at the NSC and other regular meetings /teleconferences with or at NASA Field Centers to plan and coordinate contract performance.

5.2.2 Semi-annual Contract Performance Review

The Contractor shall participate in a semi-annual contract performance review with the Government at the NSC as described in a clause to be determined in this contract.